



**CONESTOGA-ROVERS
& ASSOCIATES**

14496 Sheldon Road, Suite 200, Plymouth, Michigan 48170
Telephone: (734) 453-5123 Fax: (734) 453-5201
www.CRAworld.com

June 13, 2014

Reference No. 039611

Mr. Rosauero del Rosario
EPA Project Manager/Coordinator
U.S. Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

Dear Mr. del Rosario:

Re: Methane Remedial Action Plan – SGP-117S
Himco Site
Elkhart, Indiana



On behalf of the Himco Site Trust, Conestoga-Rovers & Associates (CRA) has prepared this Methane Remedial Action Plan for soil gas probe 117S (SGP-117S) (MRAP SGP-117S) for the Himco Site (Site) located in Elkhart, Indiana.

The purpose of this MRAP SGP-117S is to identify a plan of action to investigate elevated methane detections in SGP-117S at the Site, in accordance with the Final Operation and Maintenance Plan (O&M Plan CRA, 2012). This MRAP SGP-117S is being submitted within 30 days of the end of the verification period.

Monitoring

Figures 1 and 2 presents the Site with all SGPs and an enlarged view of SGP-117S and surrounding probe locations, respectively. Table 1 presents the soil gas data collected at soil gas probes in proximity to SGP-117S since the installation of the additional southern section of passive ventilation trench (PVT) in October 2013. CRA initiated contingency monitoring in accordance with the O&M Plan as methane was detected on April 24, 2014 at SGP-117S at a concentration greater than the O&M Plan action level. This included daily contingency monitoring from April 30, 2014 through May 16, 2014, and weekly monitoring starting May 19, 2014. On behalf of the Himco Site Trust, CRA also voluntarily monitored SGPs 27S/27D (near the Bowers'/Williams' residence) during the contingency monitoring period since they are adjacent to potential receptors.

Figure 3 presents SGP-117S and surrounding probe locations with the highest methane concentration since the installation of the PVT in October 2013. The elevated readings at SGP-117S appear to be isolated to this particular location. SGP-110 located between SGP-117S and the landfill had a maximum methane concentration of 0.5 percent by volume since

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October 2013. The other SGPs surrounding SGP-117S had zero methane readings with the exception of SGP-109 on February 25, 2014 which had a reading of 11.0 percent by volume. Readings from SGP-117D have not been measured since May 4, 2014 as the water table was elevated above the screen interval of 10 to 11 feet below ground surface (ft bgs) for the soil gas probe.

Since the installation of the additional southern section of PVT, there have been only eight instances from 24 sampling events when the methane concentration exceeded the action level at SGP-117S. Additionally, the average methane concentration was 4.48 percent from the 24 sampling events.

SGP-117S is located within the former CDA portion of the Site. The remedial action was determined in the 2007 Consent Decree (CD) requiring the upper 6 feet of contaminated soil be removed and replaced with clean soil. In the location of SGP-117S, approximately 6.5 to 7.5 feet of soil were removed and replaced with clean soil to achieve final design grade. SGP-117S/D was installed on December 18, 2012, which is after the completion of the remedial action for the Site. The stratigraphic logs in Attachment A show the upper 8.3 feet as a silty clay with a seam of debris was located at 8.3 ft bgs. The sand below the debris is the native sand for the Site. SGP-117S is screened from 6.5 to 8.0 ft bgs at the bottom of the silty clay. The silty clay is impeding the methane from naturally venting to the atmosphere, thereby resulting in a localized concentration of methane.

The MRAP SGP-117S proposed herein includes a further investigation of the source of methane at SGP-117S by using a direct push drilling methods (Geoprobe) to do bar hole soil gas sampling. The Himco Site Trust may propose additional measures to mitigate detections of methane at the Site if there is a risk to receptors.

Proposed Bar Hole Soil Gas Sampling

CRA proposes to investigate the area around SGP-117S/D laterally and vertically by using bar hole soil gas sampling methods. Figure 4 presents the three locations with a 10-foot grid around SGP-117S/D. The bar hole locations will be 10 feet in the west, south and east direction around SGP-117S/D. CRA will direct push at each primary location until 10 feet or until groundwater is encountered. A CRA geologist will log the soil and collect soil gas quality readings every 2 feet to isolate the interval if methane is detected. If methane concentrations are 5 percent by volume (i.e., above the action level), CRA will step out in each direction to further delineate the extent of methane within the area. If an interval is exhibiting methane readings greater than the action level (i.e., 5 percent methane by volume) and is located toward



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Reference No. 039611

the receptor, a soil gas probe will be installed. The probe will be installed in accordance with Section 5.8.2 of the 100% Design Report, with a minimum 1-foot screen and maximum 4-foot screened interval. The depth of the probes will depend on the interval in which the methane was detected. The new soil gas probe will be added to the soil gas network and will be monitored as per the Operational and Maintenance (O&M) Plan.

The bar hole drilling and sampling procedure will follow the below procedures:

- The Geoprobe will advance to a total depth of 10 feet or to the depth of the groundwater table in 2-foot increments.
- At each 2-foot increment (2, 4, 6, 8, 10 feet), a metal screen will be exposed.
- A Landtec GEM portable gas analyzer will then sample each interval for methane, carbon dioxide, and oxygen until the GEM is displaying stabilized soil gas readings.

CRA will monitor the new SGPs if installed along with SGP-117S/D and 27S/27D on a weekly basis until the soil gas levels are less than the action level for three consecutive weeks as per the O&M Plan. Monitoring procedures will be consistent with Section 3.2 of the Final O&M Plan (CRA, 2012).

CRA will submit a data report and recommendations within 30 days of the bar hole investigation event. Please contact me at (734) 453-5123 if you have questions or require additional information.

Yours truly,

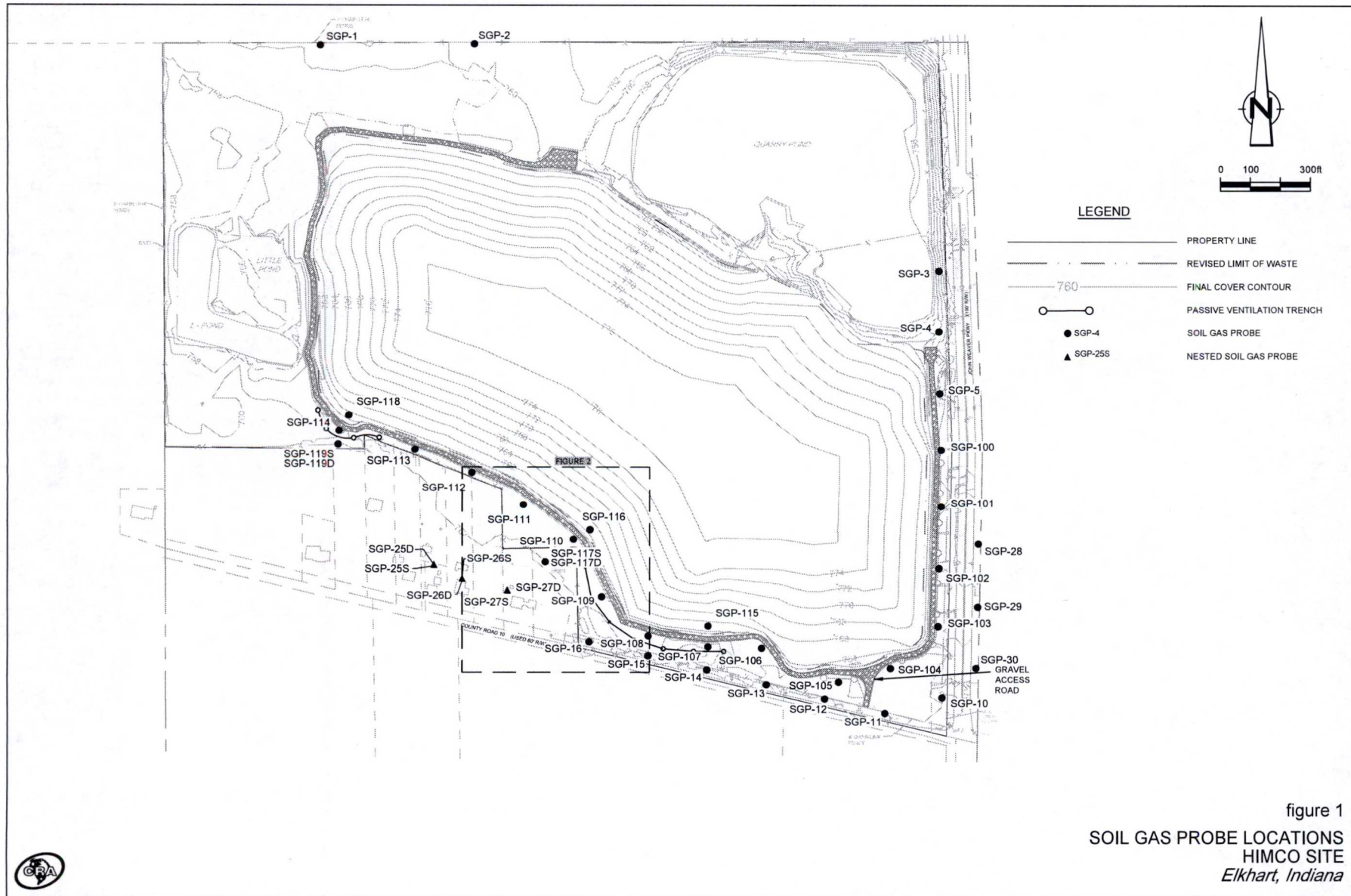
CONESTOGA-ROVERS & ASSOCIATES

Douglas M. Gatrell, PE

DMG/ds/53

Encl.

cc: Gary Toczylowski, Bayer HealthCare
Tom Lenz, Bayer HealthCare
Christopher Fassero, USACE (3 copies)
Doug Petroff, IDEM (2 copies)
Alan Van Norman, CRA (electronic)



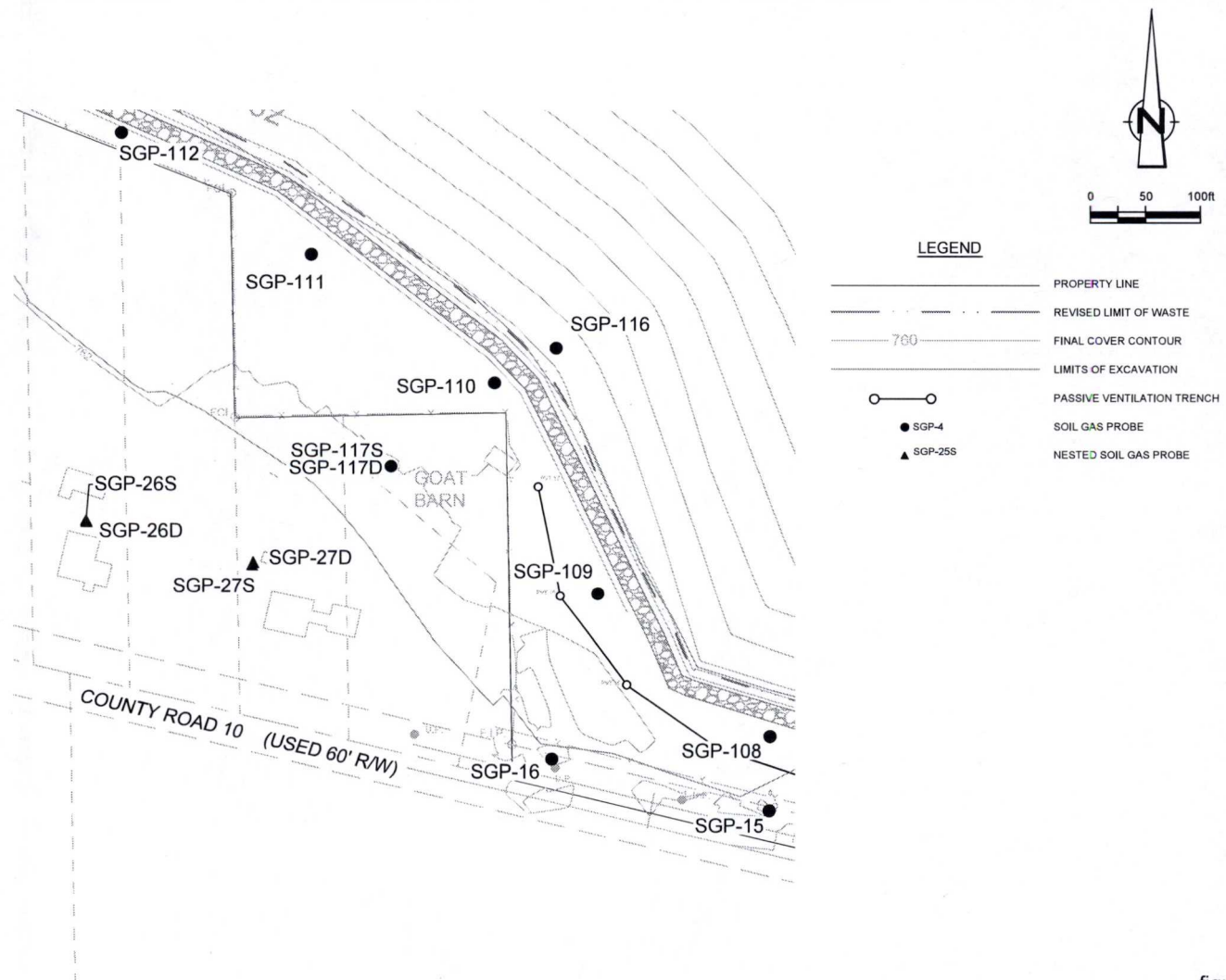


figure 2
SOIL GAS PROBE LOCATIONS NEAR SGP-117S
HIMCO SITE
Elkhart, Indiana



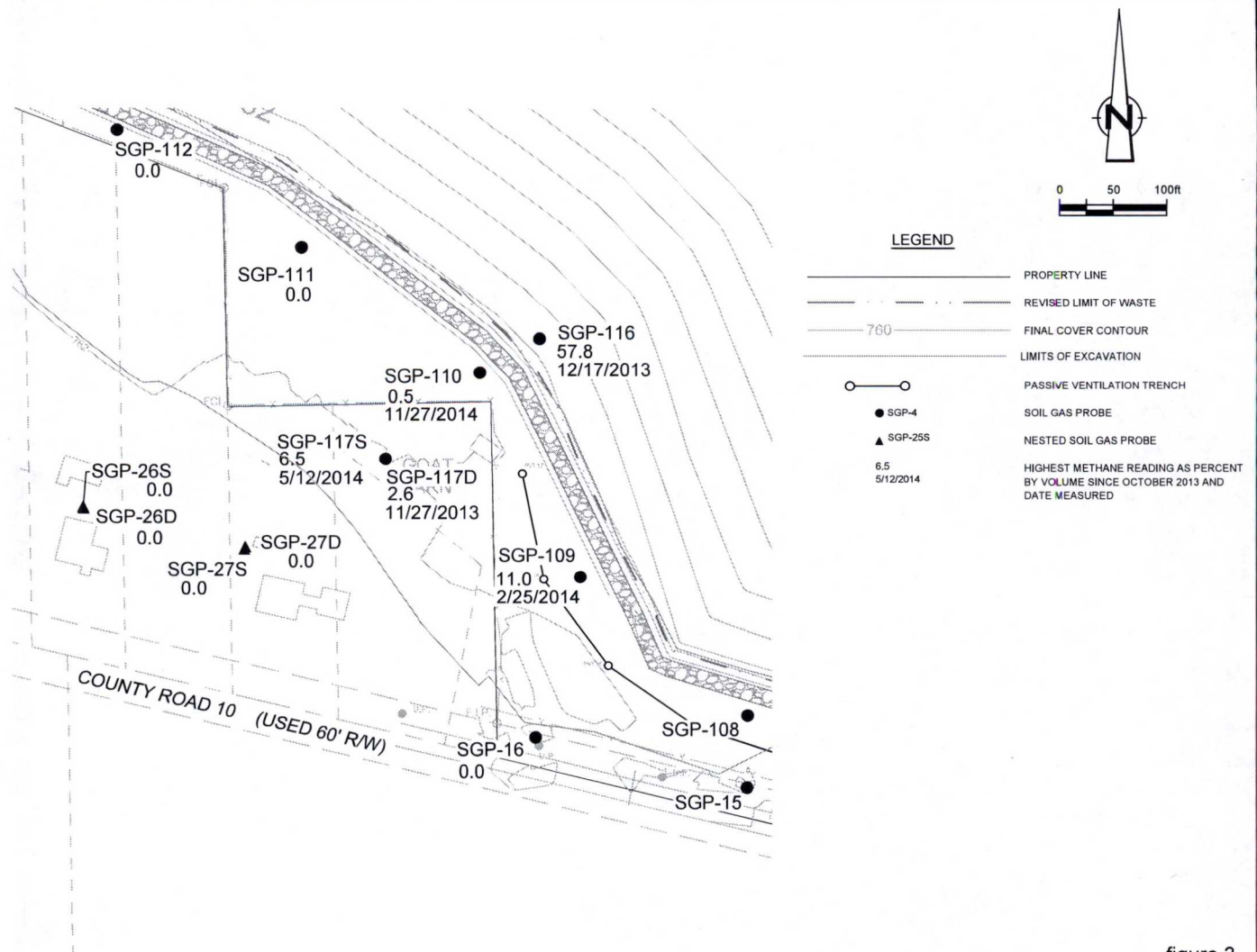


figure 3
METHANE READINGS AT LOCATIONS NEAR SGP-117S
HIMCO SITE
Elkhart, Indiana



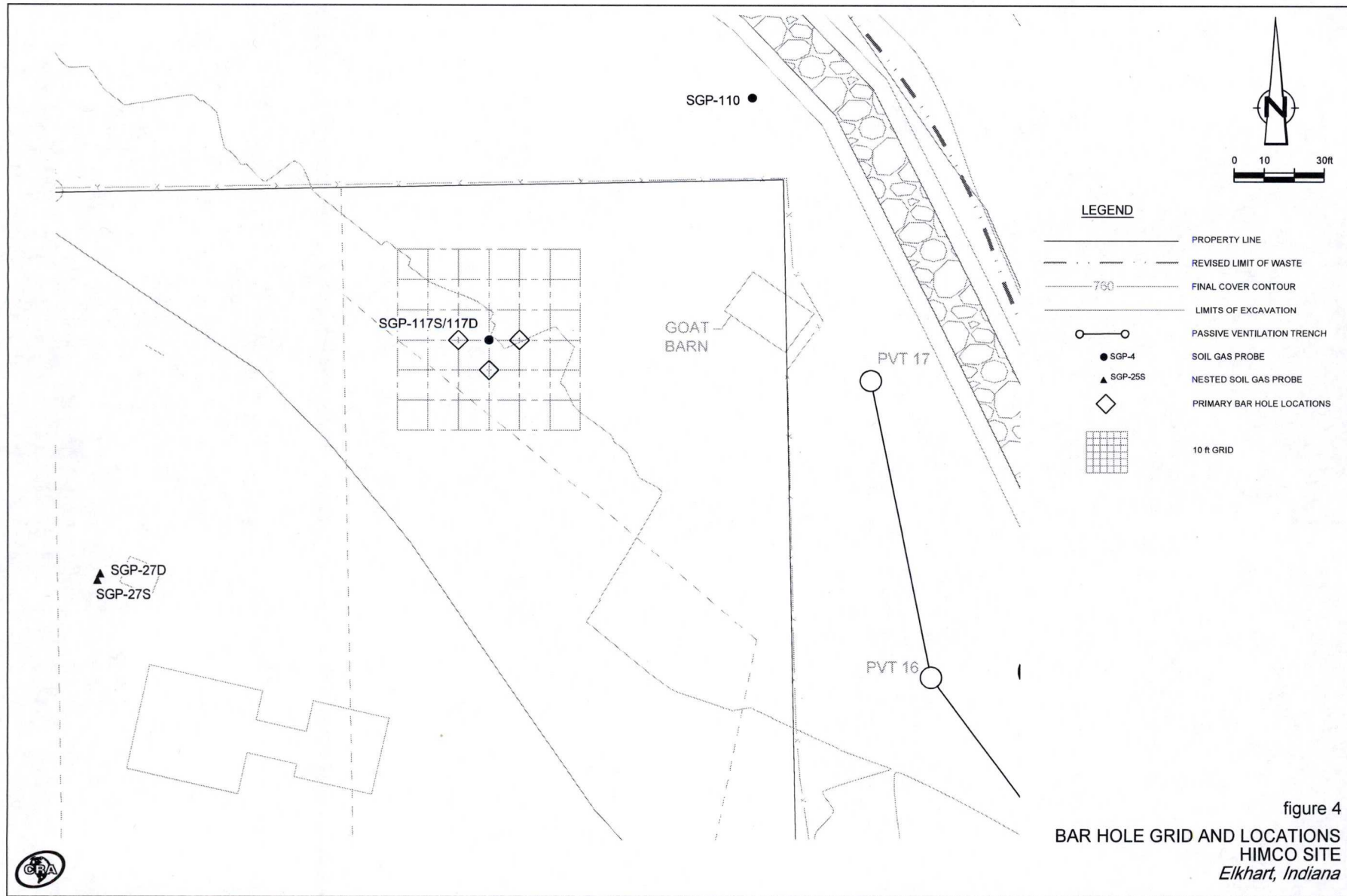


TABLE 1

SOIL GAS MONITORING DATA FROM OCTOBER 2013 TO JUNE 2014
HIMCO SITE
ELKHART, INDIANA

Location	Date	Pressure (in H ₂ O)	Gas Quality/Combustible Gas Concentrations			
			Methane % ¹	CO ₂ % ¹	O ₂ % ¹	H ₂ S % ¹
SGP-109	11/27/2013	0.0	9.4	7.0	0.0	0
	12/17/2013	0.03	0.9	6.6	0.2	0
	12/23/2013	-0.07	3.6	4.7	8.9	0
	1/29/2014	-0.04	9.6	4.9	0.3	0
	2/25/2014	0.04	11.0	5.6	0.0	0
	3/27/2014	0.17	4.4	2.0	14.0	0
	3/28/2014	0.18	4.4	2.0	14.0	0
	4/24/2014	0.24	9.9	5.6	0.0	0
SGP-110	11/27/2013	0.0	0.5	1.1	19.9	0
	12/17/2013	0.0	0.0	1.8	19.2	0
	12/23/2013	0.0	0.0	0.1	21.9	0
	1/29/2014	0.0	0.0	0.6	16.4	0
	2/25/2014	0.01	0.0	1.0	19.8	0
	3/27/2014	0.0	0.0	0.0	19.5	0
	3/28/2014	0.0	0.0	0.0	19.5	0
	4/24/2014	0.05	0.0	2.8	17.6	0
SGP-111	12/23/2013	0.0	0.0	0.7	20.2	0
	3/27/2014	0.03	0.0	0.0	20.9	0
SGP-116	11/27/2013	0.05	49.9	42.2	0.0	0
	12/17/2013	0.22	57.8	42.1	0.1	0
	12/23/2013	-0.50	35.6	29.4	5.4	0
	1/29/2014	0.17	57.3	39.6	0.0	1
	2/25/2014	0.44	44.6	30.4	0.0	2
	3/27/2014	0.75	44.6	30.4	4.4	0
	4/24/2014	0.44	51.4	38.4	0.0	3
SGP-117S	11/27/2013	-0.1	3.6	17.0	0.4	0
	12/17/2013	0.0	3.4	16.5	0.6	0
	12/23/2013	-0.07	3.3	14.7	0.2	0
	1/29/2014	0.02	3.0	13.9	0.0	0
	2/25/2014	0.03	2.9	11.1	0.7	0
	3/27/2014	0.12	3.1	7.2	9.3	0
	4/24/2014	0.13	6.2	12.5	0.1	0
	4/30/2014	0.0	3.3	8.6	1.8	nm
	5/1/2014	0.02	5.1	12.3	0.0	0
	5/2/2014	0.02	4.7	12.7	0.0	0
	5/3/2014	-0.08	5.1	13.0	0.0	0
	5/4/2014	0.0	4.9	13.2	0.0	0
	5/5/2014	0.10	4.7	13.2	0.0	0
	5/6/2014	0.0	5.0	13.5	0.0	0
	5/7/2014	0.0	3.7	12.6	0.0	0
	5/8/2014	0.0	4.9	12.4	0.0	0
	5/9/2014	0.05	4.9	13.7	0.0	0
	5/12/2014	0.00	6.5	14.8	0.0	0
	5/13/2014	0.05	5.0	15.3	0.0	0
	5/14/2014	0.00	4.7	15.2	0.0	0
	5/15/2014	0.10	4.1	14.2	0.1	nm
	5/16/2014	0.00	4.9	14.0	0.1	nm
	5/19/2014	0.00	5.2	15.8	0.0	0
	5/27/2014	0.00	5.4	14.4	0.0	0

SOIL GAS MONITORING DATA FROM OCTOBER 2013 TO JUNE 2014
HIMCO SITE
ELKHART, INDIANA

TABLE 1

Location	Date	Pressure (in H ₂ O)	Gas Quality/Combustible Gas Concentrations Methane % ¹	CO ₂ % ¹	O ₂ % ¹	H ₂ S % ¹
SGP-117D	11/27/2013	-0.1	2.6	18.0	0.7	0
	12/17/2013	0.0	2.4	17.0	0.9	0
	12/23/2013	-0.05	2.5	14.8	0.7	0
	1/29/2014	0.01	1.5	9.1	6.3	1
	2/25/2014	-0.01	0.1	0.1	22.5	0
	3/27/2014	0.30	0.1	0.0	20.8	0
	4/24/2014	-0.18	0.2	0.2	21.1	0
	4/30/2014	-16.1	0.0	0.9	20.7	nm
	5/1/2014	-0.09	0.1	0.1	20.9	0
	5/2/2014	-0.34	0.0	0.7	20.6	0
	5/3/2014	0.0	0.1	0.9	20.4	0
	5/4/2014	0.0	nm	nm	nm	nm
	5/5/2014	0.0	nm	nm	nm	nm
	5/6/2014	-4.25	nm	nm	nm	nm
	5/7/2014	0.00	nm	nm	nm	nm
	5/8/2014	0.00	nm	nm	nm	nm
	5/9/2014	0.00	nm	nm	nm	nm
	5/12/2014	0.05	nm	nm	nm	nm
	5/13/2014	0.00	nm	nm	nm	nm
	5/14/2014	0.00	nm	nm	nm	nm
SGP-16	5/15/2014	0.09	nm	nm	nm	nm
	5/16/2014	0.00	nm	nm	nm	nm
	5/19/2014	0.00	nm	nm	nm	nm
	11/27/2013	0.0	0.0	0.9	20.2	0
	12/17/2013	0.0	0.0	0.8	20.3	0
	12/23/2013	0.0	0.0	0.8	21.5	0
	1/29/2014	0.0	0.0	0.7	19.3	0
	2/25/2014	0.0	0.0	1.1	20.1	0
	3/27/2014	0.0	0.0	0.0	20.9	0
	4/24/2014	0.0	0.0	0.0	20.6	0
	4/30/2014	0.0	0.0	0.9	20.1	nm
	5/1/2014	0.0	0.0	0.9	21.0	0
	5/2/2014	-0.01	0.0	0.7	20.6	0
	5/3/2014	0.0	0.1	0.7	20.5	0
	5/4/2014	0.0	0.0	0.6	20.1	0
	5/5/2014	0.0	0.0	0.6	19.9	0
	5/6/2014	0.0	0.0	0.7	20.5	0
	5/7/2014	0.0	0.0	0.6	20.1	0
	5/8/2014	0.0	0.0	0.5	19.8	0
	5/9/2014	0.0	0.0	0.5	20.0	0
SGP-27S	5/12/2014	0.0	0.0	0.0	20.5	0
	5/13/2014	0.0	0.0	0.8	20.0	0
	5/14/2014	0.0	0.0	0.8	20.0	0
	5/15/2014	0.30	0.0	0.9	20.4	nm
	5/16/2014	0.00	0.0	0.9	20.0	nm
	5/19/2014	0.00	0.0	0.9	19.8	0

TABLE 1

**SOIL GAS MONITORING DATA FROM OCTOBER 2013 TO JUNE 2014
HIMCO SITE
ELKHART, INDIANA**

Location	Date	Pressure	Gas Quality/Combustible Gas Concentrations			
		(in H ₂ O)	Methane % ¹	CO ₂ % ¹	O ₂ % ¹	H ₂ S % ¹
SGP-27D	11/27/2013	0.0	0.0	1.0	20.1	0
	12/17/2013	0.0	0.0	0.8	20.0	0
	12/23/2013	0.1	0.0	0.7	21.1	0
	1/29/2014	0.0	0.0	0.7	20.3	0
	2/25/2014	0.01	0.0	0.9	20.9	0
	3/27/2014	0.0	0.0	0.4	20.8	0
	4/24/2014	0.0	0.0	0.5	20.7	0
	4/30/2014	0.0	0.0	0.9	20.3	nm
	5/1/2014	0.0	0.0	0.9	21.0	0
	5/2/2014	-0.01	0.0	0.7	20.8	0
	5/3/2014	0.0	0.1	0.8	20.5	0
	5/4/2014	0.0	0.0	0.7	20.0	0
	5/5/2014	0.0	0.0	0.7	19.8	0
	5/6/2014	0.0	0.0	0.7	20.5	0
	5/7/2014	0.0	0.0	0.7	19.9	0
	5/8/2014	0.0	0.0	0.4	19.9	0
	5/9/2014	0.0	0.0	0.6	19.9	0
	5/12/2014	0.0	0.0	0.6	20.7	0
	5/13/2014	0.0	0.0	0.7	20.2	0
	5/14/2014	0.0	0.0	0.7	20.2	0
	5/15/2014	0.32	0.0	0.8	20.4	nm
	5/16/2014	0.00	0.0	0.8	20.3	nm
	5/19/2014	0.00	0.0	0.9	19.8	0

Notes:¹ Percent by volume

nm - not monitored

6.5

Methane reading exceeding 5.0 percent by volume

Attachment A

Stratigraphic Logs



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: HIMCO SITE
PROJECT NUMBER: 39611
CLIENT: BAYER HEALTHCARE LLC
LOCATION: ELKHART, IN

HOLE DESIGNATION: SGP-117D
DATE COMPLETED: December 18, 2012
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	NORTHING: 2352127.99 EASTING: 234644.33 TOP OF CASING TOP OF RISER GROUND SURFACE	767.80 766.91 763.95						
2	CL-SILTY CLAY, with sand, trace gravel, firm, low plasticity, brown, moist		CONCRETE					0.0
			BENTONITE CHIPS					
			3/8" NYLON WELL CASING	1GP		80		
4	- soft, very moist at 3.2ft BGS - stiff, moist at 3.7ft BGS							0.0
	- firm at 5.0ft BGS		2" BOREHOLE					
6								0.0
8				2GP		100		
	GLASS DEBRIS, broken bits	755.65 755.55						0.0
10	SP-SAND, trace silt, fine grained, compact, poorly graded, brown, moist		3/8" STAINLESS STEEL MESH WELL SCREEN 10/20 SAND					0.0
12	- brown at 11.0ft BGS - very moist to wet at 12.0ft BGS							
14	- medium grained, gray at 13.3ft BGS		NATURAL COLLAPSE	3GP		60		0.0
16	END OF BOREHOLE @ 15.0ft BGS	748.95						
18								

WELL DETAILS

Screened interval:

753.95 to 752.95ft

10.00 to 11.00ft BGS

Length: 1ft

Diameter: 0.4in

Material: 3/8" STAINLESS

STEEL MESH SCREEN

Sand Pack:

754.45 to 751.95ft

9.50 to 12.00ft BGS

Material: 10/20 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 039611WIN.GPJ CRA CORP GDT 6/4/14

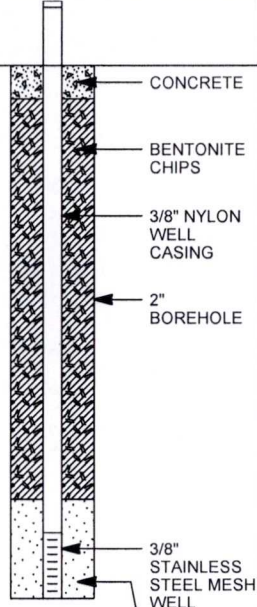


STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: HIMCO SITE
PROJECT NUMBER: 39611
CLIENT: BAYER HEALTHCARE LLC
LOCATION: ELKHART, IN

HOLE DESIGNATION: SGP-117S
DATE COMPLETED: December 18, 2012
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE			
				NUMBER	INTERVAL	REC (%)	'N' VALUE
	NORTHING: 2352127.66 EASTING: 234647.09 TOP OF CASING TOP OF RISER GROUND SURFACE	767.83 766.84 763.94					
2	CL-SILTY CLAY, with sand, trace gravel, firm, low plasticity, brown, moist		CONCRETE				
			BENTONITE CHIPS				
			3/8" NYLON WELL CASING				
4	- soft, very moist at 3.2ft BGS - stiff, moist at 3.7ft BGS		2" BOREHOLE				
6	- firm at 5.0ft BGS						
8	END OF BOREHOLE @ 8.0ft BGS	755.64	3/8" STAINLESS STEEL MESH WELL SCREEN SCREEN 10/20 SAND				
10			WELL DETAILS Screened interval: 756.94 to 755.94ft 7.00 to 8.00ft BGS Length: 1ft Diameter: 0.4in Material: 3/8" STAINLESS STEEL MESH SCREEN Sand Pack: 757.44 to 755.94ft 6.50 to 8.00ft BGS Material: 10/20 SAND				
12							
14							
16							
18							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 039611WIN.GPJ CRA_CORP.GDT 6/4/14



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& ASSOCIATES**

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Plymouth, Michigan 48170
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TRANSMITTAL

DATE: 6/13/2014 REFERENCE NO.: 039611
PROJECT NAME: Himco
To: Mr. Rosauero del Rosario
77 West Jackson Boulevard
Chicago, Illinois 60604

Please find enclosed: ☐ Draft ☒ Final
☐ Originals ☒ Other
☐ Prints
Sent via: ☒ Mail ☐ Same Day Courier
☐ Overnight Courier ☒ Other

QUANTITY	DESCRIPTION
1	Methane Remedial Action Plan - SGP-117S

☒ As Requested ☐ For Review and Comment
☐ For Your Use ☐
☐

COMMENTS:

Electronic copy sent via email in 6/13/2014

Copy to: Christopher Fassero, USACE (3 copies);
Doug Petroff, IDEM (2 copies); Gary
Toczykowski, Bayer (1 copy), Tom Lenz,
Bayer (1 copy)
Completed by: Douglas Gatrell
[Please Print]

Signed: 

Filing: **Correspondence File**



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& ASSOCIATES**

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Plymouth, Michigan 48170

Telephone: (734) 453-5123

Fax: (734) 453-5201

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TRANSMITTAL

DATE: 6/13/2014

REFERENCE NO.: 039611

PROJECT NAME: Himco

To: Mr. Rosauero del Rosario
77 Wesr Jackson Boulevard
Chicago, Illinois 60604

Please find enclosed:

☐

Draft

☐

Originals

☐

Prints

☒

Final

☒

Other

Sent via:

☒

Mail

☐

Overnight Courier

☐

Same Day Courier

☒

Other

QUANTITY	DESCRIPTION
1	Methane Remedial Action Plan - SGP-117S

☒ As Requested

☐ For Your Use

☐

For Review and Comment

☐☐

COMMENTS:

Electronic copy sent via email in 6/13/2014

Copy to:

Christopher Fassero, USACE (3 copies);
Doug Petroff, IDEM (2 copies); Gary
Toczyłowski, Bayer (1 copy), Tom Lenz,
Bayer (1 copy)

Completed by:

Douglas Gatrell

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Signed:

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